

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 1-8 are pending. In the present amendment, Claims 1-5 are currently amended and new Claims 6-8 are added. Support for the present amendment can be found in the original specification, for example, at page 16, line 17 to page 28, line 9 and in Figures 1-6. Thus, it is respectfully submitted that no new matter is added.

In the outstanding Office Action, Claims 1 and 5 were objected to; and Claims 1-5 were rejected under 35 U.S.C. § 103(a) as unpatentable over Krogedal et al. (U.S. Patent No. 7,429,298, hereinafter “Krogedal”) in view of Baba et al. (Japanese Publication No. 06-262564, hereinafter “Baba”).

Initially, it is noted that a new Abstract believed to be in more proper format is hereby submitted. It is respectfully submitted that no new matter is added.

In response to the objection to Claims 1 and 5, regarding Claim 1, the transition word “comprising” is hereby added and the body of the claim is hereby amended to more clearly recite method steps. Further, the phrase “is cut” in Claim 5 is hereby amended to recite “is turned off,” as suggested by the Office Action. It is respectfully submitted that no new matter is added. Thus, it is respectfully requested that the objection to Claims 1 and 5 be withdrawn.

In response to the rejection under 35 U.S.C. § 103(a), Applicants respectfully request reconsideration of this rejection and traverse this rejection, as discussed below.

Amended Claim 1 recites, in part, a coating method comprising performing coating with individual sprayer units reciprocating along said coating areas substantially parallel to the conveying direction of said object such that adjacent coating areas of said plural number of coating areas are respectively coated by a different one of the sprayer units. Further, the coating is performed while forming a coating trajectory of said turning paths like a series of

steps such that each successive one of the turning paths on the front side of the boundary extends further in a direction opposite to the conveying direction than each previous one of the turning paths.

Accordingly, as can be seen in Figure 2, the coating area CAb includes turning paths Tb0 on the front side of the boundary with coating area CAa, and each successive one of the turning paths Tb0 extends further in a direction opposite to the conveying direction than each previous one of the turning paths Tb0. Additionally, the adjacent coating area CAc also includes turning paths Tc0 on the front side of the boundary with coating area CAb, and each successive one of the turning paths Tc0 extends further in a direction opposite to the conveying direction than each previous one of the turning paths Tc0. Thus, the side boundary between adjacent coating areas CAa, CAb, and CAc is formed like a series of steps. Accordingly, the coating in one area is a translation of the coating in another area. It is respectfully submitted that the cited references do not disclose or suggest every feature recited in amended Claim 1.

Krogedal describes a painting system comprising a first arm 7 and a second arm 8 that can paint an object.¹ Krogedal further describes that the first arm 7 and the second arm 8 are each arranged for painting half of the object.² Additionally, Krogedal describes that the first arm 7 and the second arm 8 can move in horizontal strokes.³

The Office Action, in the third paragraph on page 4, acknowledges that Krogedal “fails to teach that coating is performed while forming a coating trajectory of said turning paths like a series of steps.” Instead, the Office Action relies on Baba to cure the above-noted deficiency of Krogedal.

¹ See Krogedal, at column 4, lines 32-49 and in Figures 4-8.

² See Krogedal, at column 3, lines 14-28.

³ See Krogedal, at column 5, lines 42-46.

Baba describes painting robots 13 and 14 that can paint independently and on both sides of the body 1 of a car.⁴ Baba further describes that after the first painting robot 13 is given instructions regarding the coordinates to paint, the second painting robot 14 is given coordinates that are a *mirror conversion* of the position of the first robot's painting arm to shorten the time for one robot to teach the next robot where to paint.⁵ Thus, painted areas done by the two robots of Baba will have mirror symmetry with respect to one another.

However, it is respectfully submitted that Krogedal as modified by Baba does not disclose or suggest "during the performing the coating of at least two of the adjacent coating areas in the coating direction... the coating is performed while forming a coating trajectory of said turning paths like a series of steps such that each successive one of the turning paths on the front side of the boundary extends further in a direction opposite to the conveying direction than each previous one of the turning paths," as recited in amended Claim 1.

Instead, in the painting system of Krogedal as modified by Baba, as discussed above, the order of painting from one robot 13 is used to teach in mirror image the opposing robot 14 to shorten the time for one robot to teach the next robot where to paint. Therefore, coating trajectories of one robot and another robot will be mirror images of one another, and thus have a symmetric shape across a center line (CL). Accordingly, the two adjacent coatings *would not* each have turning paths such that each successive one of the turning paths on the front side of the boundary extends further in a direction opposite to the conveying direction than each previous one of the turning paths. On the contrary, even assuming the one robot 13 had such turning paths, the second robot 14 would have symmetrical turning paths, and thus each successive one of the turning paths on the front side of the boundary *would not extend*

⁴ See Baba, at paragraph [0018] and in Figure 1. The paragraph and figures numbers of Baba recited herein refer to the English language machine translation of Baba.

⁵ See Baba, at paragraphs [0027] and [0028].

further in a direction opposite to the conveying direction than each previous one of the turning paths.

Further, as discussed above, Krogedal describes that the first arm 7 and the second arm 8 can move in horizontal strokes. However, Krogedal as modified by Baba does not disclose or suggest, that the turning paths of each of the horizontal strokes form the claimed series of steps.

Although the Office Action takes the position in the second paragraph on page 5 that “a second robot would be programmed or taught to pick up where the first robot left off in order to achieve improved coverage of a large object which is moved on a conveyor,” it is respectfully submitted that Baba teaches away from the second robot being programmed to pick up where the first robot left off if the first robot painted the claimed series of steps. On the contrary, as discussed above, Baba expressly teaches that the second robot 14 performs painting in a *mirror image* of the first robot 13. Thus, a second robot of the painting system of Krogedal as modified by Baba would only pick up where the first robot left off *if the first robot did not form a series of steps with the turning paths*.

Further, although Krogedal describes that the first arm 7 and the second arm 8 can move in horizontal strokes, Krogedal does not describe that the arms 7, 8 spray paint while stroking in the horizontal direction. Further, Baba describes spraying paint from the robots 13, 14 in a cross direction against the conveying direction. Thus, neither Krogedal nor Baba describes spraying paint while reciprocating in the conveying direction of an object being painted.

Accordingly, it is respectfully submitted that Claim 1 patentably defines over Krogedal as modified by Baba. Thus, it is respectfully requested that the rejection of Claim 1, and all claims dependent thereon, as unpatentable over Krogedal as modified by Baba be withdrawn.

New Claims 6-8 are added by the present amendment. Support for new Claims 6-8 can be found in the original specification, for example, at page 16, line 17 to page 28, line 9 and in Figures 1-6. Thus, it is respectfully submitted that no new matter is added.

New Claims 6 and 7 are dependent on Claim 1, and thus are believed to be patentable for at least the reasons discussed above with respect to Claim 1. Further, in view of the above discussion of Krogedal as modified by Baba, it is respectfully submitted that Claims 6 and 7 further patentably define over Krogedal as modified by Baba.

New independent Claim 8 recites, in part, a coating method comprising performing coating with a first sprayer unit and a second sprayer unit each reciprocating along said coating areas substantially parallel to the conveying direction of said object. A coating trajectory of the turning paths for reciprocation of the first sprayer unit is formed such that each successive one of the turning paths on the rear side of a boundary of a first coating area extends further in a direction opposite to the conveying direction than each previous one of the turning paths. Further, a coating trajectory of the turning paths for reciprocation of the second sprayer unit is formed such that each successive one of the turning paths on the front side of a boundary of a second coating area, which is adjacent to the first coating area, extends further in the direction opposite to the conveying direction than each previous one of the turning paths.

In view of the above discussion of Krogedal and Baba, it is respectfully submitted that Krogedal as modified by Baba does not disclose or suggest every feature recited in new Claim 8. Thus, it is respectfully submitted that Claim 8 patentably defines over Krogedal as modified by Baba.

Consequently, in view of the present amendment, no further issues are believed to be outstanding and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

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